AKTU B.TECH SEM-III

EE & EE ALLIED

EMFT

(ELECTROMAGNETIC FIELD THEORY)

SYLLABUS INTRODUCTION

CLASS ANNOUNCEMENT

GW GATEWAY CLASSES

By Swati Ma'am

GATEWAY CLASSES

Udaan Batch 2.0
EE & EE Allied

GATEWAY CLASSES

Sem-III Subjects

1. Electromagnetic Field Theory
2. Electrical Measurements & Instrumentation
3. Basic Signals & Systems
4. Open Elective / Math IV
5. Technical Communication / UHVPE
6. Python programming / Cyber Security

Sem-IV Subjects

1. Digital Electronics
2. Electrical Machines-I
3. Networks Analysis & Synthesis
4. Math IV / Open Elective
5. UHVPE / Technical Communication
6. Cyber Security / Python programming

GATEWAY CLASSES

B.TECH 2nd YEAR

OPEN ELECTIVE COURSES

(Effective from the Session 2023-24)

SEMESTER - III/IV

S.No.	Subject Codes	Subject	To be offered to
1.	BOE301/BOE401 BOE301H/BOE401H	Electric and Hybrid Vehicles	Any Engg. Branch except ME and allied branches
2.	BOE302/ BOE402 BOE302H/BOE402H	Automation and Robotics	Any Engg. Branch except ME and allied branches
3.	BOE303/ BOE403 BOE303H/BOE403H	Material Science	Any Engg. Branch except ME/CE/AG and alliedbranches
4.	BOE304/ BOE404 BOE304H/BOE404H	Energy Science & Engineering	Any Engg. Branch except EE and allied branches
5.	BOE305/ BOE405 BOE305H/BOE405H	Sensor & Instrumentation	Any Engg. Branch except EE and allied branches
6.	BOE306/ BOE406 BOE306H/BOE406H	Basics Data Structure &Algorithms	Any Engg. Branch except CSE and allied branches
7.	BOE307/ BOE407 BOE307H/BOE407H	Basics of Database Management Systems	Any Engg. Branch except CSE and allied branches
8.	BOE308/ BOE408 BOE308H/BOE408H	Analog Electronics Circuits	Any Engg. Branch except EC and allied branches
9.	BOE309/ BOE409 BOE309H/BOE409H	Electronics Engineering	Any Engg. Branch except EC and allied branches
10.	BOE310/ BOE410 BOE310H/BOE410H	Digital Electronics	Any Engg. Branch except EC and allied branches
11.	BOE311/ BOE411 BOE311H/BOE411H	Polymer Science and Technology	Any Engg. Branch except Chemical Engg and Chemical Technology and allied branches
12.	BOE312/ BOE412 BOE312H/BOE412H	Laser System and Applications	Any Engg. Branch
13.	BOE313/ BOE413 BOE313H/BOE413H	Food Science and Nutrition	Any Engg. Branch except Food Technology/ Chemical Technology and allied branches
14.	BOE314/ BOE414 BOE314H/BOE414H	Building Science and Engineering	Any Engg. Branch except CE and allied branches

Important Note: Students of BT/TX Engg. and allied branches can be offered any of the above listed courses.

GATEWAY CLASSES

Udaan Batch 2.0

B.Tech II Year

EE & EE Allied

GATEWAY CLASSES

Electromagnetic Field Theory (BEE301)

Unit-1 Syllabus

Coordinate Systems and Transformation: Basics of Vectors: Addition, subtraction and multiplications; Cartesian, Cylindrical, Spherical transformation. Vector calculus: Differential length, area and volume, line surface and volume integrals. Del operator, Gradient, Divergence of a vector, Divergence theorem, Curl of a vector, Stokes's theorem, Laplacian of a scalar.

GATEWAY CLASSES

Udaan Batch 2.0

B.Tech II Year

EE & EE Allied

GATEWAY CLASSES

Electromagnetic Field Theory (BEE301)

Unit-2 Syllabus

Electrostatic fields: Coulombs law and field intensity, Electric field due to charge distribution, Electric flux density, Gausses' Law- Maxwell's equation, Electric dipole and flux line, Energy density in electrostatic fields, Electric field in material space: Properties of materials, convection and conduction currents, conductors, polarization in dielectrics, Dielectric constants, Continuity equation and relaxation time, boundary conditions, Electrostatic boundary value problems: Poisson's and Laplace's equations., Methods of Images.

GATEWAY CLASSES

Udaan Batch 2.0

B.Tech II Year

EE & EE Allied

GATEWAY CLASSES

Electromagnetic Field Theory (BEE301)

Unit-3 Syllabus

Magneto statics : Magneto-static fields, Biot - Savart's Law, Ampere's circuit law, Maxwell's equation, Application of ampere's law, Magnetic flux density- Maxwell's equation, Maxwell's equation for static fields, magnetic scalar and vector potential.

GATEWAY CLASSES

Udaan Batch 2.0

B.Tech II Year

EE & EE Allied

GATEWAY CLASSES

Electromagnetic Field Theory (BEE301)

Unit-4 Syllabus

Magnetic forces: Materials and devices, Forces due to magnetic field, Magnetic torque and moment, a magnetic dipole. Magnetization in materials, Magnetic boundary conditions, Inductors and inductances, Magnetic energy.

GATEWAY CLASSES

Udaan Batch 2.0

B.Tech II Year

EE & EE Allied

GATEWAY CLASSES

Electromagnetic Field Theory (BEE301)

Unit-5 Syllabus

Waves and Applications: Maxwell's equation, Faraday's Law, transformer and motional electromotive forces, Displacement current, Maxwell's equation in final form Electromagnetic wave propagation: Wave propagation in loss dielectrics, Plane waves in lossless dielectrics Plane wave in free space. Plain waves in good conductors, Power and the pointing vector, Reflection of a plain wave in a normal incidence. Transmission Lines and Smith Chart.

GATEWAY CLASSES

AKTU

EE & EE Allied

Gateway

New Session 2026-27

UDAAN BATCH

2.0

Sem-III + Sem-IV

COMBO Of 11 Subject

Inc-Maths-IV

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GATEWAY CLASSES

AKTU

EE & EE Allied

Gateway

GATEWAY CLASSES

New Session 2026-27

UDAAN BATCH

2.0

Sem-III

COMBO Of 5 Subject

Helpline No- 7819 0058 53 , 9259833200

Gateway Classes

Empowering Learners, Transforming Futures

GATEWAY CLASSES

Thank You

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